

Samples of Contest Entries

BARNES COUNTY HIGHWAY DEPARTMENT
KERRY JOHNSON-ROAD SUPERINTENDENT
P.O. BOX 306
115 10TH AVE NW
VALLEY CITY ND 58072

PROBLEM: In the spring while patching pot holes we were having numerous problems with the cold mix. It had a very lumpy texture and could not be spread evenly.

SOLUTION: For hand patching pot holes, the County uses two single axle trucks with do-al hopper boxes. The hopper boxes auger material out the back of the truck and on to the roadway. We constructed a tiller-type attachment to mount on the back of the truck to break up the cold mix into a workable material before it leaves the truck. The result is a smooth and useable product which can be easily raked into the potholes to produce a better quality job.

MATERIAL: All material used on this project was material the county had on hand. We drilled and tapped holes into a 4" x 24" pipe. We placed 4" long plow bolts in the tapped holes and locked the bolts in place with nuts to construct the tiller. The end of the pipe was welded shut with flat iron and shafts were installed so the unit could be mounted on the truck with pillow block type bearings. The tiller is driven by an orbit motor, chain and sprocket (that was salvaged off an old conveyer). We utilized the existing hydraulics for the spinner to power the orbit motor. The entire unit is easily attached and detached with two pins and quick couplers on hydraulic lines. Protective guards were installed using some old screening and conveyor belting.

COSTS: Total cost, including labor, was approximately \$478.00. The savings realized are in the improved quality of the patches and the ease of application which reduces labor and increases productivity.

Potter County Highway Department
Brad W. Ware -- Superintendent
600 N. East St.
RR 1 Box 104
Gettysburg, SD 57442

Problem Statement: Develop a cost effective method of moving material at various sites throughout the County without transporting or roading slow moving equipment such as dozers, loaders and backhoes.

Solution: Construct dozer blades, in our shop, to be mounted on the V-plow lifts on the front of our motor graders. This was accomplished by going to some farm auctions and buying used farm tractor type push blades. They come in various sizes, but we found that a 10' wide blade works best. These are set up with the same quick attach mounts that our V-plows have and are easy to put on and take off in a matter of minutes. This has literally turned our motor graders into small dozers. Some of the many applications are building new field approaches, pushing material into road washcuts, covering new culverts, stockpiling gravel, reclamation work and just about anything that a small dozer can do.

<u>Cost:</u> Labor 10 hours at \$11.33 per hour	\$113.30
Used tractor blade from farm auction	\$400.00
Balderson V-plow quick attach J hooks	\$300.00
Miscellaneous welding supplies and metals	<u>\$100.00</u>
Total	\$913.30

Savings / Benefits: It is hard to put a dollar amount on the cost savings. Now instead of hauling or moving an additional piece of equipment to a job site, the motor grader takes care of the project by itself. It has saved us valuable time and manpower. We have 2 dozer blades in use now and plan to build 3 more for the rest of our motor graders.

FHWA Region 8 "You Show Us How" Contest Entry

Shouldering With Modified Chip Spreaders

1. County Information

Lincoln County, Tom Winter, 100 E. 5th, Canton, SD 57013

Codington County, Heine Junge, 1201 10th St NW, Watertown, SD 57201

2. Problem Statement

Our counties have extensive asphalt overlay programs ranging up to 25 miles of overlay in each county per year. This dramatically improves our roads, but often leaves a safety problem: the drop-off at the edge of the pavement. There are very few contractors in South Dakota who own equipment for placing aggregate material on the shoulder to correct the drop-off problem. Furthermore, it is expensive to contract this work and difficult to schedule the work quickly after the overlay to reduce liability risk.

3. Discussion of Solution

Lincoln County decided to confront the problem by modifying a machine we already owned. We simply removed the spreader box from a common "chip spreader" used in our seal coating operations and placed a simple belt conveyor across the front of the machine. This discharges gravel to the road shoulder and the amount discharged can be increased or decreased by variable controls already on the machine. A motorgrader follows to level the gravel and compact it with its wheels.

Codington County duplicated Lincoln County's idea and refined it by adding a "strike-off" device to level the material, thus eliminating the need for a grader. A roller is used for compaction.

The use of these devices has made it possible for our counties to correct drop-off problems very quickly after overlay projects and economically. Up to three miles per day (both shoulders) have been done with these machines. It also increases our over-all efficiency by making our chip spreaders more versatile and reducing the overhead costs of owning them.

4. Labor, Equipment, Materials Used

In building the original shouldering device, Lincoln County used salvage I-beams from a bridge, purchased the rollers and belts and had a local machine shop build it. Codington County used the same procedure and also used salvage metal as well as a used snow plow height adjuster in adding the strike-off box. This was fabricated by their own men.

5. Cost

Lincoln County: total labor and materials \$1586.55

Codington County: total labor and materials \$ 570.39

Virtually any department with asphalt roads who owns a chip spreader could use this modification to turn their spreader into an efficient shouldering machine.